

L 7009-66 EWT(d)/EWP(c)/EWP(v)/T/EWP(k)/EWP(1)/ETC(m) WW
 ACC NR: AP5026802 SOURCE CODE: UR/0286/65/000/017/0084/0084
 INVENTOR: Akulov, N. S.; Kozlov, V. S.
 44 53 44 33
 ORG: none
 TITLE: A magnetographic inspection method. Class 42, No. 174415
 74 33 14
 SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 17, 1965, 84
 TOPIC TAGS: flaw detection, magnetic method, metal inspection
 ABSTRACT: This Inventor's Certificate introduces a magnetographic inspection method which consists of applying a ferrotape to the magnetized article being inspected and determining the flaws in the article from the resulting magnetogram. The contrast of the recording on the magnetogram is increased by transverse premagnetization of the ferrotape which is then applied to the article to be inspected in such a way that the magnetic induction vectors of the ferrotape and the article are oppositely directed.
 SUB CODE: IE,EM/ SUBM DATE: 26Sep64/ ORIG REF: 000/ OTH REF: 000
 nw
 Card 1/1 UDC: 620.179.14.05
 0901.1761

ERLIKH, Yakov Moiseyevich, kand.ekonom.nauk; KOZLOV, Vladimir Sergeyevich, kand.ekonom.nauk; GOL'DBERG, Abram Mikhaylovich, starshiy prepodavatel'; PRIVEZENTSEVA, A.G., red.; PYATAKOVA, N.D., tekhn.red.

[Statistical study of labor productivity in industry; based on materials of the Odessa Economic Council] Statisticheskoe izuchenie proizvoditel'nosti truda v promyshlennosti; po materialam predpriyatii Odesskogo sovnarkhoza. Moskva, Gos.stat. izd-vo, 1959. 129 p. (MIRA 13:2)

(Odessa Province--Productivity accounting)

KOZLOV, V.S., dotsent; ZAKHAROV, F.M.

Methods for eliminating sterility in cows on a state farm. Veterinariia
40 no.5:43-44 My '63. (MIRA 17:1)

1. Alma-Atinskiy zooveterinarnyy institut (for Kozlov). 2. Glavnyy
veterinarnyy vrach sovkhoza "Aksay", Alma-Atinskoy oblasti (for Zakha-
rov).

DENISOV, L.A.; KOZLOV, V.S.

Determining the magnetization force necessary for magneto-
graphic control. Stroi. truboprov. 8 no.9:19-20 S '63.
(MIRA 16:11)

1. Gosudarstvennyy montazhnyy trest Glavsantekhmontazha
Ministerstva stroitel'stva SSSR, Minsk.

DOLGUSHEVSKIY, F.G., dots.; KOZLOV, V.S., dots.; PANCHENKO, V.P., assistant; POLUSHIN, P.I., starshiy prepodavatel'; POSTNIKOVA, G.V., kand. ekon. nauk; ERIKH, Ya.M., dots.; SHENTISIS, Ye.M., red.; IL'YUSHENKOVA, T.P., tekhn. red.

[Statistical study of labor productivity and the uncovering of its potentials in agriculture] Nekotorye voprosy statisticheskogo izucheniia i vyavleniia rezervov proizvoditel'nosti truda v sel'skom khoziaistve. [By] F.G. Dolgushevskii i dr. Moskva, Gosstatizdat, 1962. 189 p. (MIRA 16:1)

1. Prepodavateli Odesskogo kreditno-ekonomicheskogo instituta (for all except Shentsis, Il'yushenkova).
(Odessa Province--Agriculture--Labor productivity)

DOLGUSHEVSKIY, F.G., dots.; GOL'DBERG, A.M., dots.; KOZLOV, V.S., dots.; PANCHENKO, V.P., assistant; POLUSHIN, P.I., st. prepod.; ERLIKH, Ya.M., dots.; TRUKHANOVA, A.N., red.; IL'YUSHENKOVA, T.P., tekhn. red.

[Problems in economic statistics] Sbornik zadach po ekonomicheskoi statistike. [By] F.G.Dolgushevskii i dr. Moskva, Gosstatizdat, 1963. 311 p. (MIRA 16:9)
(Statistics--Problems, exercises, etc.)

DENISOV, L.S., inzh.; KOZLOV, V.S., inzh.

Checking the quality of welding in the construction of municipal
gas lines in the White Russian S.S.R. Stroi. truboprov. 8 no.1:
20-21 Ja '63. (MIRA 16:5)

1. Trest No.24 Gosudarstvennogo montazhnogo tresta Glavsantekhmontazha
Ministerstva stroitel'stva SSSR, Minsk.
(White Russia--Gas pipes--Welding)
(Gamma rays--Industrial applications)

PAVLOV, I.M.; BELOSEVICH, V.K.; Primali uchastiye: USHAKOV, Ye.V., inzh.;
KOZLOV, V.S., laborant

Investigating the relationship between the friction coefficient and
speed and pressure on a special unit. Trudy Inst.met. no.9:139-146
'62. (MIRA 16:5)

(Friction)

KOZLOV, V.S.

New 5th series transformer stations of the State Institute for the
Design and Planning of Electric Power Systems. Prom. energ. 18 no.7:
44-45 J1 '63. (MIRA 16:9)

1. Kazgiprotsvetmet.
(Electric substations)

KOZLOV, Vasilii Sergeyevich; DOBRONEVSKIY, Ye.D., nauchn. red.

[Black and white electron-beam tubes and external
auxiliary devices] Chernobelye elektronoluchevye trub-
ki i vneshnie vspomogatel'nye ustroistva. Moskva, TSent
nauchno-issl. in-t patentnoi informatsii i tekhniko-ekon.
issl., 1964. 40 p. (MIRA 18:5)

KOZLOV, V.S. (Minsk)

Increasing the reliability of the MD-11 defectoscope. Stroi.
truboprov. 10 no.2;29 F '65. (MIRA 18:5)

KOZLOV, V.S., inzh. (g. Chirchik)

A simplified method of determining the maximum power consumption of agricultural consumers. Energetik 13 no.8:17-18 Ag '65. (MIRA 18:9)

DENISOV, I.S., inzh.; KOSILOV, V.S., inzh.

Magnetographic method of controlling welded joints. Svar. proizv.
no.7:16-18 JI '65. (MIRA 18:8)

KOZLOV, V.Sh., inzh.

Precast reinforced concrete sectional girders. Prom. stroi. i
inzh. soor. 1 no.1:29-32 0 '59. (MIRA 13:12)
(Girders)

GUTMAN, G.I., inzh.; KOZLOV, V.Sh., inzh.; SYTNIK, V.I., inzh.

Open standard crane trestles. Prom.stroi. 38 no.1:25-27
'60. (MIRA 13:5)

(Cranes, derricks, etc.)
(Trestles)

KOZLOV, V.Sh.; SVESHNIKOV, G.V.

Experimental construction of a building from machine-cast
elements. Prom.stroi. 39 no.8,35-40 '61. (MIRA 14.9)
(Kiev—Precast concrete construction)

LIBERMAN, A.D., kand.tekhn.nauk; KOZLOV, V.Sh., inzh.; SVESHNIKOV, G.V.,
inzh.

Design and construction of a mechanically assembled building for an
automatic machine-tool plant. Prom. stroi. 39 no.10:42-47 0
'61. (MIRA 14:10)

1. Nauchno-issledovatel'skiy institut stroitel'nykh konstruktsiy
Akademii stroitel'stva i arkhitektury USSR (for Liberman).
 2. Kiyevskiy Promstroyproyekt (for Kozlov). 3. Kiyevskiy sovnar-
khoz (for Sveshnikov).
- (Kiev--Precast concrete construction)

KOZLOV, Vladimir Shalayich; DYKHOVICHNYI, Aleksandr Aleksandrovich;
GONCHAR, A.S., red.; BERGER, K.V., red.; YEREMINA, I.A.,
tekhn. red.

[Design of reinforced-concrete elements; mechanical methods]
Raschet zhelezobetonnykh konstruktsii; mekhanizirovannye me-
tody. Kiev, Gosstroizdat USSR, 1963. 493 p. (MIRA 16:4)
(Calculating machines) (Precast concrete)

DENISOV, L.S.; KOZLOV, V.S.

Possibilities for using pulse magnetization in magnitographic
control of city gas mains. Stroi. truboprov. 9 no.5:23-26 My
164. (MIRA 17:9)

1. Trest No.24 Santekhmontazh, Minsk.

KORSHUNOV, D.A., inzh.; KOZLOV, V.Sh., inzh.

Standard elements for precast monolithic short shells. Stroi.
konstr. no.2:5-14 '65. (MIRA 18:12)

1. Nauchno-issledovatel'skiy institut stroitel'nykh konstruktsey
SSSR, Kiev (for Korshunov). 2. Kiyevskiy Gosudarstvennyy
proyektnyy institut ro obshchestroitel'nomu i sanitarno-
tekhnicheskomu proyektirovaniyu promyshlennykh predpriyatiy
Gosstroya SSSR (for Kozlov).

KOZLOV, V.Sh., inzh.; SAMOLETOV, M.V., inzh.; KHARITONOV, I.G., inzh.;
KORSHUNOV, D.A., kand. tekhn. nauk

Standardization of open gantry cranes. Prom. stroi. 42 no.6:
20-23 '65. (MIRA 18:12)

1. Kiyevskiy gosudarstvennyy proyektnyy institut po obshchestroi-
tel'nomu i sanitarno-tekhnicheskomu proyektirovaniyy promyshlennykh
predpriyatiy Gosstroya SSSR (for all except Korshunov). 2. Nauchno-
issledovatel'skiy institut stroitel'nykh konstruktsiy Gosstroya SSSR
(for Korshunov).

124-57-1-1077

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 1, p 150 (USSR)

AUTHOR: Kozlov, V. T.

TITLE: Torsion of Compound Beams Made of Rolled Angle Irons
(Krucheniye sostavnykh sterzhney iz prokatnykh ugolkov)

PERIODICAL: Nauch. zap. Odessk. politekhn. in-ta, 1956, Vol 9, pp 105-110

ABSTRACT: Bibliographic entry

1. Beams--Stresses--Bibliography

Card 1/1

Kozlov, V.T.

AUTHORS: Kozlov, V. T., and Dorogostayskiy, Z. E.

TITLE: Instrument for Determining Transverse Deformation of Rod Specimens (Pribor dlya opredeleniya poperechnoy deformatsii sterzhnevyykh obraztsov)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, No. 1, pp. 103-104

ABSTRACT: The article describes an instrument proposed by Prof. A. P. Korobov for determining the transverse deformation where a rod is either stretched or compressed longitudinally. It is based on the application of a transmitting, double-knee lever device clamped on the piece that is being tested. A dial indicator is included in the circuit of the instrument. A diagram showing the principle of the instrument is presented. The instrument is of simple construction, portable and reliable in its functioning.

ASSOCIATION: Odessa Polytechnical Institute (Odesskiy politekhnicheskiy institut)

PRESENTED BY:
Card 1/2

Instrument for Determining Transverse
Deformation of Rod Specimens

SUBMITTED:

AVAILABLE:

Card 2/2

KOZLOV, V.T.

Experimental investigation of deformations of noncircular rods
subjected to free and hindered torsion. Nauch.zap.Od.politekh.inst.14:
85-95 '59. (MIRA 14:3)

(Elastic rods and wires)

L 43080-66 EWP(k)/EWT(m)/T/EWP(w)/EWP(z)/ETI IJP(c) JD/TW

ACC NR: AR6014374 (A,N) SOURCE CODE: UR/0137/65/000/011/D005/D005

AUTHORS: Kozlov, V. T.; Vysochin, V. D. 43
B

TITLE: Improvement of fatigue properties of wire cable by means of elastic-plastic elongation 16 17

SOURCE: Ref. zh. Metallurgiya, Abs. 11D30

REF SOURCE: Sb. Stal'n. kanaty. Vyp. 2. Kiyev, Tekhnika, 1965, 425-427

TOPIC TAGS: wire, wire product, fatigue strength, elongation

ABSTRACT: Results of investigations show that elastic-plastic elongation changes the character of the distribution of residual tensions. The fatigue properties of wire cables are notably improved by the proper choice of drawing technology and elongation stresses. 3 illustrations, 2 tables. L. Kochenova Translation of abstract

SUB CODE: 13,11,20

Card 1/1 *gd*

UDC: 621.771.001

15.9120

11.2210

2209, 1403, 1138 only

86295

S/190/60/002/008/007/017
B004/B054

AUTHORS:

Tarasova, Z. N., Kaplunov, M. Ya., Kozlov, V. T.,
Klauzen, N. A., Dogadkin, B. A.

TITLE:

Interaction of Sulfur With Natural Rubber Under the Action
of Ionizing Radiation

PERIODICAL:

Vysokomolekulyarnyye soyedineniya, 1960, Vol. 2, No. 8,
pp. 1201-1206

TEXT: The authors study the problem of production of radiation-resisting rubbers, the conditions for a common vulcanization of irradiated and sulfurated rubbers, and the modification of rubbers treated with radiation. The present paper gives the first informative results of investigation of the effect of radiation by Co^{60} on rubber in the presence of sulfur. A considerable sulfur addition occurred at $25^{\circ}C$, and was accelerated by an increase in the radiation dose and temperature, particularly by addition of hexane chloro ethane. In thermal vulcanization, the admixture of chloro derivatives showed no effect on sulfur addition. The presence of sulfur delays the structuration as compared with rubber without sulfur admixture.

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Interaction of Sulfur With Natural Rubber Under S/190/60/002/008/007/017
the Action of Ionizing Radiation B004/B054

But structuration increases also here between -80°C and $+100^{\circ}\text{C}$ with increasing temperature. Pure rubber showed at 50°C a reversion of the structuration process, which was not observed in the presence of sulfur in the temperature range investigated. A study of the infrared spectra in argon of irradiated rubbers with and without sulfur showed a decrease in intensity of the 840 cm^{-1} band due to a reduced degree of nonsaturation. This effect was more intense in the presence of sulfur. The decrease in intensity of the 2940 and 1450 cm^{-1} bands due to a reduced number of CH_2 groups or ring formation was, however, more intense in the presence of sulfur. An investigation of the sulfur exchange at 120°C in irradiated rubber tagged with radioactive sulfur, carried out by a method described in Ref. 7, showed that about 40% of sulfur is exchangeable. This amount does not depend on the radiation dose (up to 100 megarepents). The high degree of exchangeability is ascribed to a formation of polysulfide groups. Sulfurous rubbers with addition of hexachloro ethane showed, on irradiation with 20 megarepents, maximum values of tensile strength (about 130 kg/cm^2) and of elongation. When irradiating pure rubber, a maximum (about 100 kg/cm^2) is only attained at 50-70 megarepents. Sulfurous irradiated vulcanizates showed a faster stress relaxation than irradiated vulcanizates free from

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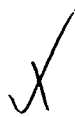
86295

Interaction of Sulfur With Natural Rubber Under S/190/60/002/008/007/017
the Action of Ionizing Radiation B004/B054

sulfur. The authors assume that sulfur addition leads to a more homogeneous and regular structure since secondary reactions causing chain ramification are inhibited. There are 7 figures and 7 references: 3 Soviet, 3 US, and 1 British.

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promyshlennosti
(Scientific Research Institute of the Tire Industry)

SUBMITTED: March 24, 1960



Card 3/3

S/844/62/000/000/095/129
D204/D307

AUTHORS: Dogadkin, B. A., Tarasova, Z. N., Kaplunov, M. Ya., Kozlov, V. T., Klauzen, I. A. and Matveyev, V. S.

TITLE: The interactions of sulfur with polymers under the action or irradiation

SOURCE: Trudy II Vsesoyuznogo soveshchaniya po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 554-562

TEXT: The interactions of S with natural rubber, 1,4-cis-polybutadiene, butadiene-styrene and butyl rubber was studied, under irradiation from a Co⁶⁰ source. S added on to natural rubber at 25 - 100°C and to butadiene-styrene rubber and polyethylene at 25°C, under argon, in amounts increasing with the dose (0 - 120 Mr), the rate of addition being faster at higher temperatures. At room temperature the amount of S added on is independent of the initial S-content in the starting mixture (1 - 10% by weight). The addition

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The interactions of ...

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D204/D307

was promoted by C_2Cl_6 . The presence of S hindered the development of structurization, which was, however, promoted by raising the temperature from -80 to 100°C. Pure natural rubber developed cross-linking only up to ~50°C, above which temperature the process was reversed; this reversal was not observed in the presence of 2% S, up to 100°C. The presence of 1 - 4% S in CKC-30AM (SKS-30AM) butadiene-styrene rubber led only to a slight reduction in the degree of cross-linking on irradiation. The loss of unsaturation and $-CH_2-$ groups on irradiation was studied (by ir spectroscopy) on natural rubber both in the presence and absence of S, and was found to be greater in the latter case. The S adds on in a form capable of isotopic exchange with elemental sulfur. Initially 70% of the added sulfur may be exchanged in natural and butadiene-styrene rubbers; this value falls with irradiation to a constant 40% at 50 - 120 Mr. Radiational vulcanizates of natural rubber exhibit increased tensile strength when the polymer contains 2% S, particularly at 100°C; in general, the strength increases with the dose of irradiation. The best strengths were obtained for a mixture of

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The interactions of ...

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D204/D307

natural rubber, S, and C_2Cl_6 . The sulfur is believed to interact with the polymeric radicals⁶ (formed on irradiation by C-C fission) to form polysulfides which (a) lower the thermomechanical stability, and (b) prevent recombination reactions and reactions of radicals formed with C=C, thus hindering the development of branched structures. There are 12 figures.

ASSOCIATION: NII shinnoy promyshlennosti (NII of the Tire Industry)

Card 3/3

S/190/62/004/008/010/016
B101/B180

AUTHORS: Tarasova, Z. N., Fogel'son, M. S., ~~Kozlov, V. T.~~
Kashlinskiy, A. I., Kaplunov, M. Ya., Dogadkin, B. A.

TITLE: Epr study of the radiation vulcanization of rubber in the
presence of sulfur and hexachlor ethane

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 4, no. 8, 1962,
1204-1209

TEXT: Recorded epr spectra were used to study the formation of free
radicals during the radiation polymerization of natural rubber (NR) and
mixtures of NR with 2wt.% sulfur or 10wt.% C_2Cl_6 . Irradiation was

conducted at $-196 - +20^{\circ}C$ with Co^{60} at a dose of 6 - 11 Mr. Results:

(1) Long-lived radicals with an initial concentration of $(1-2.5) \cdot 10^{14} mg^{-1}$
form in NR and its mixtures with S or C_2Cl_6 at $20^{\circ}C$ and 6-8Mr. ✓

(2) Radicals of different lives form with irradiation at $-196^{\circ}C$. Their
initial concentrations in NR, NR + C_2Cl_6 and in NR + S are

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Epr study of the radiation ...

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B101/1180

(4.9 ± 0.7) $\cdot 10^{15} \text{ mg}^{-1}$, (11 ± 2) $\cdot 10^{15} \text{ mg}^{-1}$, and (2.6 ± 0.6) $\cdot 10^{15} \text{ mg}^{-1}$, respectively. The inhibiting effect of S is due to delocalization of an electron in the S_8 ring. (3) If the NR + C_2Cl_6 sample irradiated at -196°C is slowly brought to room temperature, structuration occurs near the vitrification temperature (-70°C). Short-lived radicals disappear and the concentration of free radicals approaches the room temperature level. (4) Gradual heating of the NR + S sample yields new short-lived radicals with a g factor of 2.027 ± 0.003 which is typical of S radicals. The radicals whose concentration reaches a maximum of approximately $6 \cdot 10^{14} \text{ mg}^{-1}$ at -80°C are formed by reaction between NR and S, the S_8 ring being ruptured. (5) After irradiation, crystalline C_2Cl_6 showed an intensive epr signal, from which it is assumed that various types of radical are formed. The formation of $\cdot CCl_3$ radicals was confirmed by the analytical detection of chloroform. (6) Structuration of NR irradiated at low temperatures is supported by C_2Cl_6 and impeded by S which increases

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Epr. study of the radiation ...

S/190/62/004/008/010/016
B101/B180

the static strength of the radiation vulcanizate. (7) Crystalline S showed only a weak epr signal. There are 5 figures.

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promyshlennosti
(Scientific Research Institute of the Tire Industry)

SUBMITTED: May 12, 1961

Card 3/3

L 17560-65 EMO(j)/EWT(m)/EPP(c)/EPP(n)-2/EPR/EMP(j)/T/EMA(h)/EMA(l) Pc-l/
Pr-1/Ps-1/Pe-1/Pt-1 GG/RM

ACCESSION NR.: AP4049784

S/0133/64/000/011/0023/0033

AUTHOR: Kaplanov, M. Ya.; Khozak, V. K.; Kozlov, V. T.; Sobolev, V. S.; Tarazova, Z. N.; Borisov, V. A.; Karpov, V. L.; Dogadkin, B. A.

TITLE: Thermoradiation vulcanization of tires ✓

SOURCE: Kauchuk i rezina, no. 11, 1964, 28-33

TOPIC TAGS: thermoradiation vulcanization, rubber structure, sulfur vulcanization, tire wear, thermal aging

ABSTRACT: The effectiveness of the method of thermoradiation vulcanization was investigated from the point of view of increasing the quality of the tires. The radiation unit consisted of 18 spent, heat-liberating elements from an atomic reactor. The total activity amounted to 76,000 gram-equivalents of radium. Not more than six 5.60-15 tires could be treated at one time in a cylindrical vat with a hermetically closed cover. The tires had a reduced content of vulcanizing agent; one contained a sensitizer of radiation structuring hexachlorethane. Irradiation was in an argon medium at 0.35 atm pressure. The temperature did not exceed 40C. Radiation doses amounted to 5, 9, 13, and 20 Mrad. The resulting vulcanizate had the optimum relationship of crosslinks of the type -C-C- and

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17560-65

ACCESSION NR: AP4048784

11
-C-S_x-C. The destructive processes as well as processes of oxidation and trans-isomerization were less than during sulfur and radiation vulcanization. The relative content of rubber in the "active" portion of the vulcanization network was high. The rubbers had 15 much higher elasticity and strength, as well as increased resistance to thermal aging and wear. Accelerated road tests showed 15-20% greater wear resistance than standard tires. "The relationship between structurization and destruction was determined by A. S. Ly*kin, N. D. Stepanov, V. Ye. Lesnichiy and L. M. Dunayev (member of NIFKhl) took part in setting up the apparatus. The design of the apparatus was developed under the guidance of G. N. Lisov (member of NIFKhl). Measurements of radioactivity and dosimetry were carried out by A. G. Vasilyev and V. Ye. Drozdova (member of NIFKhl). The TsZL MShZ took part in manufacturing the tires." Orig. art. has 5 figures and 4 tables.

ASSOCIATION: Nauchno-issledovatel'skiy institut shimov promy'shlennosti (Scientific Research Institute for the Tire Industry); Nauchno-issledovatel'skiy fiziko-khimicheskoy institut im. I. Ya. Karpova (Scientific Research Institute for Physics and Chemistry)

SUBMITTED: 00

ENCL: 00

SUB CODE: MT

NO REF SOV: 005

OTHER: 001

Card 2/2

L 15191-66 EWT(m)/EPF(n)-2/EWP(j)/T/EWA(h)/EWA(1) GG/GS/RM

ACC NR: AT5023444

SOURCE CODE: UR/0000/65/000/000/0220/0229

AUTHOR: Kozlov, V. T.

ORG: none

TITLE: Radiative cross linking of rubber-like polymers

SOURCE: Simpozium po elementarnym protsessam khimii vysokikh energiy. Moscow, 1963. Elementarnyye protsessy khimii vysokikh energiy (Elementary processes of the chemistry of high energies); trudy simpoziuma. Moscow, 1965, 220-229

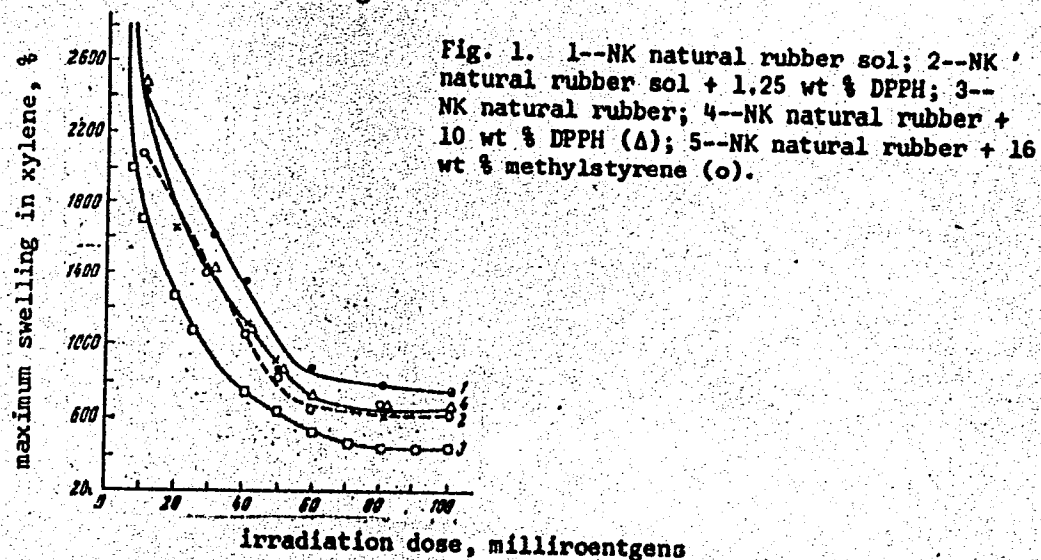
TOPIC TAGS: radiation polymerization, radical polymerization, synthetic rubber, isoprene, polychloroprene, polybutadiene, EPR, natural rubber, irradiation effect, gamma irradiation, free radical

ABSTRACT: The effect of irradiation on cross linking of NK natural rubber, SKI-3 polyisoprene rubber, KhK chloroprene rubber, SKD polybutadiene rubber, SKS-30 and ARM butadiene-styrene rubbers, SKMS-30 and ARKM butadiene-methylstyrene rubbers, and SKEP ethylene-propylene rubber is studied. The yields of free radicals under γ -irradiation of solid rubbers (-196°C) were measured by EPR technique at -196°C and the yields of cross linking were measured in terms of maximum swelling in xylene at room temperature. Radiative cross linking of natural rubber and the sol fraction of

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ACC NR: AT5023444

natural rubber with various contents of diphenylpicrylhydrazine (DPPH) as a function of irradiation dose is shown in fig. 1.



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ACC NR: AT5023444

The radiative cross linking of rubbers proceeds mainly via the ionic-molecular mechanism. It was found that irradiation of rubbers results in an initial loss of free radicals due to recombination and that for each type of rubber there is an optimum irradiation dose for maximum free radical buildup and cross linking. Orig. art. has: 3 figures, 1 table.

SUB CODE: 07,11/ SUBM DATE: 23Feb65/ ORIG REF: 009/ OTH REF: 001

Card 3/3 *mm*

TARASOVA, Z. N.; DOGADKIN, B. A.; LYKIN, A. S.; KAPLUNOV, M. Ya.; KHOZAK, V. K.;
KOZLOV, V. T.; SOBOLEV, V. S.; KLAUZEN, N. A.

"Struktura i svoystva vulkanizatorov, poluchennykh kombinirovannym deystviem
sery i ioniziruyushchikh izlucheniye."

report submitted for 35th Intl Cong, Industrial Chemistry, Warsaw, 15-19
Sep 64.

Nauchno-issledovatel'skiy institut shinnoy promyshlennosti, Moscow.

YANSHIN, A.L., akademik; YAKOVLEV, Yu.Ya. (Moskva); PLOTKIN, S.Ya., kand.tekhn. nauk (Moskva); GVOZDETSKIY, N.A., prof.; NOVIK, I.B. (Moskva); SVINTSITSKIY, V.N. (Moskva); KOZLOV, V.V. (Moskva); SULIDI-KONDRAT'YEV, Ye.D. (Moskva); BELOV, S.V. (Leningrad)

Books. Priroda 54 no.7:56-57; 71; 104-111 J1 '65.

(MIRA 18:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova (for Gvozdet'skiy).

KOZLOV, Vadim Valentinovich

Legal-medical significance of Gunsmith Lubricants concerning
Bullet Wounds (experimental research)

Dissertation for candidate of a Medical Science degree. Chair of Legal
Medicines (head, Asst. Prof. I.V. Skopin) Saratov Medical Institute, 1957

KOZLOV, V.V. (Vadim Valentimovich)

Significance of the impregnation of skin nerve fibers with silver
for the diagnosis of intravital injuries. Sud.-med.ekspert. 3 no.1:
18-21 Ja-Mr '60. (MIRA 13:5)

1. Kafedra sudebnoy meditsiny (zav. - dotsent I.V. Skopin [deceased])
Saratovskogo meditsinskogo instituta.
(WOUNDS AND INJURIES) (SKIN--INNERVATION)

KOZLOV, V.V.

We are improving the remote control of deep wells. Neftainik 3 no.4:
26 Ap '58. (MIRA 11:5)

1. Ispolnyayushchiy obyazannosti nachal'nika konstruktorskogo byuro
elektromontazhnogo tsekha neftepromyslovogo upravleniya Starogrozneft'.
(Oil wells) (Remote control)

AFANAS'YEV, P.M., inzh.; BORODICH, M.K., inzh.; DOLGOV, V.A., inzh.;
KOZLOV, V.V., inzh.

Manufacture of wire-reinforced concrete articles on the TP-906
unit in Krasnodar. Bet.1 zhel.-bet. no.6:254-257 Je '61.
(Krasnodar--Prestressed concrete) (MIRA 14:7)

BORODICH, M.K., nauchnyy sotrudnik; AFANAS'YEV, P.M., nauchnyy sotrudnik;
KOZLOV, V.V.

Tensioning station of very simple design. Bet. 1 zhel.-bet.
8 no.6:276 Je '62. (MIRA 15:7)

1. Krasnodarskiy filial Nauchno-issledovatel'skogo instituta
po stroitel'stvu Ministerstva stroitel'stva RSFSR (for Borodich,
Afanas'yev). 2. Glavnyy inzhener zavoda No.3 Krasnodarskogo
sovnarkhoza (for Kozlov).
(Prestressed concrete)

KOZLOV, Vasil'y Vasil'yevich; BEDRAK, T.V., red.; DATRIYEVA, Ye.U.,
tekhn. red.

[On multinational collective farm] V mnogonatsional'nom
kolkhoze. Ordzhonikidze, Severo-osetinskoe knizhnoe izd-vo,
1959. 18 p. (MIRA 16:7)

(Collective farms)

KOZLOV, V.V. (Moskva); SULIDI-KONDRAT'YEV, Ye.D. (Moskva)

Before the flight into the unknown; collection of papers "New discoveries about the moon." Reviewed by V. V. Kozlov, E. D. Sulidi-Kondrat'ev.
Priroda 53 no.4:118 '64. (MIRA 17:4)

KOZLOV, V.V., kand.med.nauk

Unusual transpositions of internal organs in automobile accident injuries. Sud. - med. ekspert. 6 no.3:51-52 J1-S'63.

(MIRA 16:10)

1. Kafedra kriminalistiki (zav. - dotsent D.P.Rasseykin) Saratovskogo yuridicheskogo instituta.

(TRAFFIC ACCIDENT INVESTIGATION) (TRAUMATISM)

1ST AND 2ND ORDER																										3RD AND 4TH ORDER																									
COMMON ELEMENTS																										SPECIAL ELEMENTS																									
<p>Adsorption of mineral dyes on wool fiber from aqueous suspensions. M. A. IL'INSKII AND V. V. KOLLOV. <i>J. Russ. Phys.-Chem. Soc.</i> 63, 665-72(1930).—The object was to study the adsorption of mineral dyes (PbO_2, $PbCrO_4$, $(PbCrO_4)_2$, $Pb(OH)_2$, ultramarine) on woolen fabric which has been technically washed with soda and soap soaps. When woolen cloth is passed through an aq. suspension of mineral dyes the latter settle on the fiber in an even layer. The reaction is completed in the cold in 2-10 min. The resultant dyeing is substantially fast to water. The particular object of the expts. was to study quant. the stages of adsorption as functions of the concn., temp., time and diln. as well as adsorption on acidified cloth, the effect of electrolytes, and the degree of reversibility of the process. For the quant. studies, air-dried $PbCrO_4$ (0.37% H_2O) was employed and a cloth of 11.62% moisture (av.). For the qual. studies the other substances were employed. Adsorption proceeds better in ordinary H_2O than in distd. H_2O. The presence of mineral salts in ordinary water makes the adsorption complete and gives the dyeing a brighter shade. The adsorption increases rapidly with time at first, but gradually approaches a const. value; it shows a typical curve. As the concn. increases, the wt. adsorbed increases linearly and rapidly at first up to a certain point; then further increase abruptly ceases and the curve becomes flat. As temp. rises, the adsorption increases but slightly. As concn. of electrolytes increases, adsorption first decreases, then increases, then again decreases. As the diln. increases, the wt. of dyestuff adsorbed decreases but slowly. After triple washing the cloth retained 60% of the dyestuff initially adsorbed. As the concn. of acid increases, the quantity of acid adsorbed by the fabric increases up to a certain value, whereupon it becomes const. The dyed acidified fabric at once shows an increase of 13 to 25% in adsorbed wt. of dye over non-acidified fabric. However, as quantity of acid adsorbed increases, the wt. of dyestuff adsorbed does not increase very rapidly.</p> <p style="text-align: right;">D. K.</p>																																																			
<p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			

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1ST AND 2ND COVERS

PROCESSES AND PROPERTIES INDEX

27

Some wetting materials. V. V. Korlov and T. D. Seledova. *Aminokrasochndya* *Prav.* 3, 84 7(1937). In the prepn. of wetting substances the best results were obtained by simultaneous sulfonation of $C_{12}H_{26}$ with 68% fuming H_2SO_4 and condensation with fusel oil, iso-AmOH and PrOH (Brit. pat. 230,241, C. J. 21, 910), whereby a solid product could be isolated only with fusel oil. The product possesses good wetting and emulsifying properties, and in dyeing of cotton and especially of wool fabrics produces very level effects.

Chas. Blane

ASD-55A METALLURGICAL LITERATURE CLASSIFICATION

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Metallo-ammino complex compounds of nitrosulfonic acids of naphthalene and benzene. (N. N. Vorozhtsov and V. V. Kozlov, *J. Gen. Chem.* (U. S. S. R.) 3, 917-20(1933).) By the interaction of nitrosulfonic acids of CuII and CoII with aq. NH_3 in solns. of Cu and Ni salts, or by mixing the sol. Cu and Ni salts of these acids with aq. NH_3 , there were pptd. pure, cryst. metallo-ammo. complex compds. insol. or nearly insol. in H_2O and common org. solvents (cf. Ephraim, *C. A.* 14, 2300; 15, 2373; 17, 912). The structures of these complexes are $\text{Cu}(\text{NH}_3)_4\text{R}_2^+$ and $\text{Ni}(\text{NH}_3)_6\text{R}_2^+$ (cf. Chugaev, Werner, et al.). The ability of NO_2^- and halogen-substituted sulfonic acids to give such complex compds. is ascribed to their increased electroning. character. The ability of 1,2,4- $\text{NO}_2\text{C}_6\text{H}_3\text{SO}_3\text{H}$ (I) to give most easily these complexes shows the influence of the σ -position of the NO_2 and SO_3H groups in the ring (cf. *C. A.* 27, 2440). The influence of the electrong. radicals is further dis-

played by the inability of the sulfonic acids of CuH_2 and CuH_3 to give such insol. complexes, while α - and β -anthraquinonesulfonic acids produce them. The sparingly sol. Cu and Ni salts of disulfonic and nitrosulfonic acids of CuH_2 gave sol. NH_3 complexes. Some dinitro naphthalenesulfonic acids, such as 1,8,9-(O_2N) $_3\text{CuH}_2\text{SO}_3\text{H}$, some β -nitrosulfonic acids (2,1- and 2,4,8-) and 1,2- and 1,6-(O_2N ,Cl)SO $_3\text{H}$ produced no complex compounds. p -(O_2N ,Cl)SO $_3\text{H}$ (II) gave no complex NH_3 compounds with Ni and Co salts, but produced the insol. Cu complex. The formation of some metallo-ammino complexes with the sulfonic acids of α - CuH_2NO_2 is so highly sensitive that the reaction can be used for detection and detn. of Cu and Ni and nitrosulfonic acids. All complex compounds lose some NH_3 at room temp. and all the NH_3 at 110° . By substituting aromatic and aliphatic amines for NH_3 in the reaction, there were obtained ppts. of the salts of the corresponding α -(O_2N ,Cl)SO $_3\text{H}$ and amines free from Cu and Ni. By addn. of NH_4Cl or $(\text{NH}_4)_2\text{SO}_4$ to a soln. of Cu salt of an α -(O_2N ,Cl)SO $_3\text{H}$ or O_2NCl -SO $_3\text{H}$ there were obtained cryst., sol. and lousd ppts. of the type $(\text{NH}_4)_2\text{SO}_4 \cdot \text{CuH}_2$ (cf. Gmelin-Kraut, *Handbuch anorg. Chem.*, 5, 876). The sensitiveness of the following reactions is given in parts of Cu, Ni or Co in parts of H_2O . (1,2-(O_2N ,Cl)SO $_3$) $_2\text{Cu}(\text{NH}_4)_2 \cdot 2\text{H}_2\text{O}$, m.

1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
PROCESS AND PROPERTIES INDEX																																																			
<p>10</p> <p>Laboratory control of β-naphthol production at the Frumze Dzerzhinsk works. V. V. Kozlov and A. A. Cher- kasski. <i>Antimirovskaya Prom.</i> 6, 156-60(1934).— A general method of analysis is described. C. B.</p>																																																			
<p>A.S.N.S.L.A. METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			
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Light-fast basic dyes with heteropoly compounds (Pasallacke). V.V. Kozlov. *Anilinukrasochaya Prom.* 5, 120-35, 180-92 (1935); *Chem. Zentr.* 1936, 1, 2443. Topics discussed include lab. expts. on the prepn. of fannal dyes from complex phosphotungstic, phosphomolybdic and silicotungstic acids of Russian manuf., tests of the fastness to light of the pigments so obtained both in the pure form and on carriers. (Al gels, BaSO₄, kaolin), and suggestions as to their use. W. A. Moore

COMMON ELEMENTS

WATERWAYS INDEX

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND CODES										3RD AND 4TH CODES									
PROCESSES AND PROPERTIES INDEX																			
<p>BC</p> <p>METHODS OF DYE ANALYSIS. I. ANALYSIS OF QUINONOID DYES BY THE TITANIUM METHOD. Y. V. Keslov (J. Appl. Chem. Russ., 1958, 8, 1478--1483).--Standard $TiCl_3$ or $Ti_2(SO_4)_3$ solutions change their titre by 0.000064 N per day; the oxidised solutions can be periodically regenerated by adding Zn. The dyes are best titrated in 2% EtO-EtOH containing 10g. of Na K tartrate and approx. 1% of dye; the results tend to be high, by 2.5%. Titration with $CrCl_2$ in place of $TiCl_3$ does not give satisfactory results, owing to the indefinite end point and to the slowness of the reaction with certain dyes. (He-violet, auramines, rhodamines); the most readily reduced are oxasine and thiazine dyes. R. T.</p>																			
<p>ASB. 11.4 METALLURGICAL LITERATURE CLASSIFICATION</p>																			
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<p>Active manganese dioxide from pyrolusite. V. V. Kozlov and T. I. Vol'fon. <i>J. Chem. Ind. (Moscow)</i> 12, 1167-71 (1935).—The practical details for the extra. of pyrolusite with HCl, pptn. of Mn(OH)₂ by NaOH and oxidation of the Mn(OH)₂ with Cl₂ to give MnO₂ of high oxidizing power are described. H. M. Leicester</p>																										18																																																																																																																																	
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Methods of dye analysis. II. Analysis of quinonoid dyes by means of heteropoly-acids.

III. Analysis of quinonoid dyes by means of permanganate titration. V. V. Kozlov (J. Appl. Chem. Russ. 1936, 9, 669-667, 716-714; cf. B., 1936, 131).—II. Basic quinonoid dyes can be approx. determined by titration with alichestungic acid (I); phosphotungstic and molybdic acids (II) are less suitable. A more exact method consists in adding excess of (I) to the solution, filtering, drying the washed ppt. to const. wt., and igniting and weighing the residue. Acidic quinonoid dyes may be determined by pptn. with BaCl₂ in presence of (II), followed by ignition of the weighed dried ppt., but pptn. is less complete than in the case of basic dyes.

III. 1 ml. of a 1% solution of the dye is added to 500 ml. of H₂O and 50 ml. of H₂SO₄, and the solution is titrated at 90° with 0.1N-KMnO₄ (decolorization, followed by a pink coloration). 50 ml. of a 0.1% solution of the dye are shaken for 1 hr. with 10-13 g. of kaolin and 100 ml. of H₂O, 30 ml. of the filtrate are added to 470 ml. of H₂O and 50 ml. of H₂SO₄, and the solution is titrated as above. The difference between the titrations corresponds with the content of dye in the given sample. The products of oxidation are benzoquinone, N₂, CO₂, and H₂O.

R. T.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION
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STABLE PREPARATIONS OF DIAZO COMPOUNDS. V. V. Kozlov.																									
Rum. 51,988, Sept. 30, 1937. Aq. solns. of salts of aromatic diazo- or tetrazo compds. are treated with heteropoly acids or their salts free of P, e. g., with phosphomolybdates and the products are sepd. in the usual manner.																									
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Diazo compounds. I. Diazotization of amines in the presence of bivalent tin salts. V. V. Kozlov, *J. Gen. Chem.* (U. S. S. R.) 7, 1035-44 (1937).—Aminophenols (*m*- and *p*-) of the benzene and C_6H_5 series, which are usually difficult to diazotize, can be diazotized quickly and normally with $NaNO_2$ in the presence of $SnCl_2$ in neutral or acid solutions. When this salt is present, even 1-amino-2-hydroxy-4-cyanonaphthalene, which cannot be diazotized under ordinary conditions, reacts without difficulty. The stability of the diazotized soln. is increased by the presence of $SnCl_2$. When excess HNO_3 is present coupling reactions with diazonium salts often give tars and by-products. If the soln. contains $SnCl_2$, such side reactions are entirely suppressed and very pure products are obtained from the coupling. Salts of bivalent Mn and Fe also show this behavior.

H. M. Leicester

1ST AND 2ND GROUES										PROCESSES AND PROPERTIES INDEX										3RD AND 4TH GROUES									
<div>CA</div>										<div>Light-sensitive nitro compounds N. N. Voronkov and V. V. Kuslov, <i>Org. Chem. Ind. U.S.S.R.</i> 4, 200-202(1977); cf. C. A. 51, 61107, 80961. A summary of previous publications with theoretical and practical discussion of the results.</div>										<div>10</div>									
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Light-sensitive nitro compounds. III. meso-Nitroanthracenemonosulfonic acids. N. N. Vorobytsov and V. V. Kófilov. *J. Gen. Chem.* (U. S. S. R.) 7, 720-28 (1937); cf. C. A. 27, 2440. The prepn. of nitroanthracene-sulfonic acid (I) by the method of Barnett and Matthews (C. A. 18, 2130) does not succeed unless the mixt. is kept at 10-15° during nitration. I cannot be prepd. by sulfonation of the nitroanthracene, since only anthraquinone is formed. Treatment of I with HCl and HClO₄ gives a dichloride which is oxidized by CrO₃ to α -chloroanthraquinone. This shows that I has the meso-structure. Reduction of I with Zn and H₂SO₄ gives the corresponding amine. When this is diazotized and heated with POCl₃ it gives a sulfone, m. 154-5°, which is hydrolyzed by NaOH to 9-anthranol-1-sulfonic acid. Thus, I is 9-nitroanthracene-1-sulfonic acid. Its Na, Ca, Cu, Hg⁺, Hg²⁺, Ba, Pb, Ag and ferric salts are described. meso-Nitroanthracene-2-sulfonic acid (II) must also be cooled during its prepn. by the method of B. and M. It cannot be prepd. by nitration of anthracene-2-sulfonyl chloride. Its Cu, Ba, Ag, Pb and ferrous salts are described. When I is exposed to light, it forms a dark compd. while under the same conditions, II gives a color-

less compd. IV. The action of light on water solutions of nitrosulfonic acids and on their color on wool and paper. *Ibid.* 904-1004. Salts of 1-nitro-8-naphthalenesulfonic acid (I) in aq. solns. are autocatalytically reduced by light to give dark compounds. The reaction is faster in neutral or alk. solns. than in acids. The Mg salt is more active than the Na salt or free I. The change occurs better when the salt is deposited on wool than on silk or cotton. The presence of oxidants hinders the reaction, and hence it goes best in a N₂ or CO₂ atm. The 1,8-isomer is more sensitive to light than its 1,2- or 1,7-isomers. In general, compds. in which NO₂ and SO₃H are closest to each other are the most sensitive. When the substituents are in the quinogenic (1,5 and 1,7) positions, the acid is less sensitive than when they are in the non-quinogenic (1,8 and 1,9) positions. Among the dinitrodiphenyl disulfides and dinitrodiphenyl disulfides and the nitrobenzenesulfonic acids, the β -isomers are the most sensitive, but none are as active as I. When paper soaked in these solns. and exposed to light is rinsed with dil. Na₂Cr₂O₇ solns., the colors are set better than if pure H₂O is used. The salts of the *peri*-naphthalene compds. desensitize AgBr emulsions.

H. M. Leicester

ASB-15A METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS
PROCESSES AND PROPERTIES INDEX

COMMON ELEMENTS

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Analysis of dyes. V. Analysis of insoluble azo dyes and color lacquers. V. V. Kozlov and A. V. Simanovskaya. *J. Applied Chem.* (U. S. S. R.) 10, 688 (4) (in French 095) (1937); cf. C. A. 31, 3202a, (1937). Color lacquers are analyzed by the Limprecht method (*Ber.* 11, 35 (1878)) or by the Gattorshinskaya method (C. A. 27, 5083). To analyze insol. azo dye (org. pigments) 0.1 g. was dissolved in 25 cc. of H₂SO₄ (d. 1.84) by heating on a water bath for 30 min. The resulting soln. was dild. with 400 cc. of water and, after all air in the flask was displaced by CO₂, was treated with 40-70 cc. of SnCl₄ for 45 min. to 2 hrs. until there was a sharp change of color while heating on a boiling water bath. The excess of the reducing agent was back-titrated in the usual manner. TiCl₄ and Th(BO₃)₃ can be used as the reducing agents instead of SnCl₄, but the results are less accurate than with SnCl₄. Paints are analyzed in the same way, since the oil does not interfere with the analysis.

A. A. Polgorny

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A. A. Polgorny

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A. A. Polgorny

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Analysis of dyes. V. Analysis of insoluble azo dyes and color lacquers. V. V. Kozlov and A. V. Simanovskaya. *J. Applied Chem.* (U. S. S. R.) 10, 688 (4) (in French 095) (1937); cf. C. A. 31, 3202a, (1937). Color lacquers are analyzed by the Limprecht method (*Ber.* 11, 35 (1878)) or by the Gattorshinskaya method (C. A. 27, 5083). To analyze insol. azo dye (org. pigments) 0.1 g. was dissolved in 25 cc. of H₂SO₄ (d. 1.84) by heating on a water bath for 30 min. The resulting soln. was dild. with 400 cc. of water and, after all air in the flask was displaced by CO₂, was treated with 40-70 cc. of SnCl₄ for 45 min. to 2 hrs. until there was a sharp change of color while heating on a boiling water bath. The excess of the reducing agent was back-titrated in the usual manner. TiCl₄ and Th(BO₃)₃ can be used as the reducing agents instead of SnCl₄, but the results are less accurate than with SnCl₄. Paints are analyzed in the same way, since the oil does not interfere with the analysis.

A. A. Polgorny

COMMON ELEMENTS

COMMON ELEMENTS

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Analysis of dyes. V. Analysis of insoluble azo dyes and color lacquers. V. V. Kozlov and A. V. Simanovskaya. *J. Applied Chem.* (U. S. S. R.) 10, 688 (4) (in French 095) (1937); cf. C. A. 31, 3202a, (1937). Color lacquers are analyzed by the Limprecht method (*Ber.* 11, 35 (1878)) or by the Gattorshinskaya method (C. A. 27, 5083). To analyze insol. azo dye (org. pigments) 0.1 g. was dissolved in 25 cc. of H₂SO₄ (d. 1.84) by heating on a water bath for 30 min. The

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<div style="display: flex; justify-content: space-between;"> CA 10 </div> <div style="text-align: center; border: 1px solid black; padding: 10px; margin: 10px;"> <p>β-Anthraquinonesulfonyl chloride. V. V. Kuryov and R. G. Fionova. Russ. 52,119, Jan. 31, 1958. Anthraquinone is treated with chlorosulfonic acid in the presence of sulfates of metals of the first and the second group of the periodic system, or of salts of β-anthraquinonesulfonic acid or lig compounds.</p> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION 82-- 1- 1000 </div> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <th colspan="10">STANDARDIZATION</th> <th colspan="10">RECORDING AND INDEXING</th> <th colspan="10">CLASSIFICATION</th> <th colspan="10">SUBJECT INDEXING</th> </tr> <tr> <td colspan="10">FORM NO. 1</td> <td colspan="10">FORM NO. 2</td> <td colspan="10">FORM NO. 3</td> <td colspan="10">FORM NO. 4</td> </tr> </table>																																																																																																								STANDARDIZATION										RECORDING AND INDEXING										CLASSIFICATION										SUBJECT INDEXING										FORM NO. 1										FORM NO. 2										FORM NO. 3										FORM NO. 4									
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PROCESS AND PROPERTIES INDEX

Lacquer pigments. N. V. Vorozhtsov, Jr., V. Y. Kuznetsov, A. V. Simanovskaya and A. T. Troshchenko. Russ. 52,804, March 31, 1938. Azo dyes obtained by coupling of *p*-hydroxybiphenyl with diazo compounds. free of salt forming groups are treated with a substrate such as Al. (SO₂)₂ or BaCl₂.

AND U.S.A. METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDER										3RD AND 4TH ORDER									
PROCESSES AND PROPERTIES INDEX										1ST AND 2ND ORDER									
<p><i>Ca</i></p> <p>Azo dyes. V. V. Korlov. Russ. 53,444, July 31, 1938. Small amts. of salts of metals that can be oxidized to a higher stage, e. g., stannous, ferrous or manganous salts, are added to diazo solns. before coupling with the usual components.</p>										<p><i>25</i></p>									
<p>COMMON ELEMENTS</p> <p>COMMON INDEX</p>										<p>COMMON INDEX</p>									
<p>ASTM-31A METALLURGICAL LITERATURE CLASSIFICATION</p>										<p>ASTM-31A METALLURGICAL LITERATURE CLASSIFICATION</p>									
<p>COMMON INDEX</p>										<p>COMMON INDEX</p>									

1ST AND 12TH COLUMNS										3RD AND 4TH COLUMNS									
PROCESSES AND PROPERTIES INDEX																			
<div style="display: flex; justify-content: space-between;"> BC B-II-4 </div> <p>Colorimetric and nephelometric methods of analysis of quinacridone dyes and their leuco-bases. V. V. Kozlov (Zavod. Lab., 1938, 7, 1367—1370).—The concn. of dye solutions is determined colorimetrically, and of the leuco-bases nephelometrically. R. T.</p>																			
ASB-31A METALLURGICAL LITERATURE CLASSIFICATION																			
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ca 24

Dyeing furs, feathers, etc. V. V. Koshov and H. S. Zhuk. Russ. 50,109, December 31, 1930. The dyeing effected with 1,3-, 1,7-, 1,8-, and (or) 2,3-dihydroxynaphthalenes or their mixts., $p\text{-C}_6\text{H}_4(\text{NH}_2)_2$, $p\text{-H}_2\text{NC}_6\text{H}_4\text{OH}$, $1,4\text{-C}_6\text{H}_4(\text{NH}_2)_2$, etc., in the presence of an oxidizing agent, e. g., H_2O_2 .

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

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Dyeing furs, feathers, etc. V. V. Kostov and R. S. Zhuk. Russ. 56,100, Dec. 31, 1939. Black color is obtained by oxidation of a mixt. of 2,6- or 2,7-dihydroxynaphthalene and β -phenylenediamine, e. g., with H_2O_2 .

ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION

GROUPS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1st AND 2nd GROUPS		PROCESSES AND PROPERTIES INDEX		3rd AND 4th GROUPS	
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<p>Light-sensitive nitro compounds. VI. Some derivatives of nitronaphthalene with <i>o</i>- and <i>p</i>-substituents containing sulfur. N. N. Vorozhtsov, V. V. Kuz'kov and I. S. Travkin. <i>J. Gen. Chem.</i> (U. S. S. R.) 9, 622-3 (1939); cf. <i>C. A.</i> 32, 4959. <i>o</i>-Nitro-<i>p</i>-naphthylamine (I) is best prepd. by nitration of acet-<i>p</i>-naphthalide. When I undergoes the Gattermann reaction with SCl_2 in the presence of H_2SO_4, it gives 1-nitronaphthalene-2-sulfonic acid (II), m. 119.5°. If HCl is used instead of H_2SO_4 in this reaction, the product is 1-chloronaphthalene-2-sulfonic acid, m. 137.1°. II is moderately light-sensitive. Nitration of acet-<i>o</i>-naphthalide gives a mixt. of the 2- and 4-nitro deriva. These are best sepd. by dissolving the mixt. in 10% KOH, dilg., adding the ppt. to dry PhNO_2 and passing in a stream of dry HCl. Under these conditions, 1,4-nitronaphthylamine is obtained. By the Gattermann reaction this gives 1-nitronaphthalene-4-sulfonic acid, m. 132.5°, which is oxidized by H_2O_2 to the corresponding sulfonic acid. Both these acids are weakly sensitive to light. 2-Nitronaphthalene-1-sulfonic acid is prepd. by the Sandmeyer reaction from 2-naphthylamine-1-sulfonic acid. It is a hygroscopic yellow powder whose Hg, Fe and Ag salts are insol. It is not sensitive to light.</p> <p>H. M. Leicester</p>					
<p>Lab. 7 Dyestuffs, Moscow Chem.-Tech. Inst. im. Mendeleev</p> <p>AS. 51. NETLURCK LITERATURE CLASSIFICATION</p>					

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PROCESSES AND PROPERTIES INDEX

Naphthalene series. VIII. Preparation of 4-nitro-*n*-naphthylamine and its transformation into an azo dye. N. N. Vorozhtsov and V. V. Kozlov. *J. Gen. Chem.* (U. S. S. R.) 9, 587 (1939); *Ch. C. A.* 31, 5700. Oxidation of 4-nitroso-*n*-naphthylamine with acid KMnO_4 at 50° gives 4-nitro-*n*-naphthylamine (D, m. 190°), yellow needles from alc. or concd. NH_4OH . Diazotized with 10% excess resorcinol in alk. soln. gives a deep blue soln. from which a dye, $\text{C}_{10}\text{H}_7\text{N}_3\text{O}_2$, brown-black powder, is pptd. with acid. The dye, unsuitable as an indicator, gives a fuchsin-red soln. in concd. H_2SO_4 . The sepn. of isomeric nitroamines by crystal. from concd. NH_4OH is successfully applied to mixts. of 2- and 4-nitroanilines and of 8- and 5-nitro-*n*-naphthylamines.

John Livak

ASAC-514 METALLURGICAL LITERATURE CLASSIFICATION

RECORDS DIVISION

RECORDS DIVISION

RECORDS DIVISION

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Chemistry of naphthalene derivatives. 1. Reaction of naphthalenemonosulfonic acids with alkali chlorates. V. V. Kodov and D. G. Talydov. *J. Gen. Chem.* (U. S. S. R.) 9: 1827-33 (1930). The reaction of 1- $\text{C}_6\text{H}_4\text{SO}_3\text{Na}$ in dil. HCl with KClO_3 at the boiling temp. gave chiefly 1,6- $\text{C}_{10}\text{H}_6\text{Cl}_2$ and some 1,5-, 1,8- and 1,7-isomers. 2- $\text{C}_6\text{H}_4\text{SO}_3\text{Na}$ under these conditions gave about 33% 2,6- $\text{C}_{10}\text{H}_6\text{Cl}_2$. The reactions are accompanied by partial oxidation of the di-Cl compds. to 6-chloro-1,4-naphthoquinone, m. 106-7°. The formation of di-Cl derivs. does not take place at lower temps. (80-90°). Chas. Blanc

Lab. Organic Intermediate Products + Dyes, Moscow Chem-Tech. Inst
v.m. Mandelkern

ASB-51A RESEARCH LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS																										1ST AND 2ND ORDERS																									
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<p>Oil capacity of organic pigments and colored varnishes V. V. Kozlov and A. V. Simanovskaya. <i>Poligraf. Promysl.</i> 1936, No. 10, 39-42; <i>Khim. Referat. Zhur.</i> 1940, No. 6, 119; cf. C. A. 34, 35151. — Comparative data are presented on the oil capacity of some org. pigments and colored varnishes used in the polygraphic industry. For dett. of oil capacity the method of Fasig is preferred to those of Gardner-Coleman and of the Sci. Research Inst. of Varnishes and Pigments; it is more rapid, accurate and convenient, and gives reproducible results.</p> <p style="text-align: right;">W. R. Henn</p>																																																			
<div style="display: flex; justify-content: space-between;"> <div> <p>ASD-51A METALLURGICAL LITERATURE CLASSIFICATION</p> <p>1ST AND 2ND ORDERS</p> </div> <div> <p>1ST AND 2ND ORDERS</p> <p>1ST AND 2ND ORDERS</p> </div> </div>																																																			

BC

B-2-8

Use of organic dyes and lakes for polygraphy.
II. Covering power. V. Y. KOSLOV and A. V.
SIMANOVSKAYA (D. Appl. Chem. Russ., 1939, 12,
1904—1913). Methods of determining covering power
are described, and applied to a no. of org. dyes and
lakes. The covering power diminishes in the order:
Insol. pigments > basic lakes of basic dyes >
Ba-anthrquinone lakes > Ba-substantive dyo
lakes > Ba-sold and dye lakes. R. T.

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

CIA-RDP86-00513R0008259100

Diazo compounds. II. The interaction of diazo compounds with complex heteropoly acids. V. V. Koslov and B. N. Arkhipov. *J. Gen. Chem.* (U. S. S. R.), 10, 685-96 (1940); cf. *C. A.* 31, 8517⁺.—Previously it was shown (Russ. pat. 51,908; *C. A.* 33, 8324⁺) that aromatic diazonium salts react with heteropoly acids and their salts free from F to form water-insol. complex diazo compounds. Addnl. data show that the scheme of the quant. reaction with phosphomolybdic acid (II) (and with phosphotungstic acid) is: $3 \text{Ar}_2\text{N}_2\text{X} + \text{L}_2\text{H}_2\text{O} = [\text{Ar}_2\text{N}]_6\text{H}_2\text{P}(\text{MoO}_4)_5 + \text{L}_2\text{H}_2\text{O} + 3 \text{HX}$. Silicotungstic acid reacts with 4 mols. $\text{Ar}_2\text{N}_2\text{X}$. The complex diazo compounds, derived from isomeric nitroanilines, toluidines and anisidines, are insol. in common org. solvents and are sol. in cold acetic, dil. glycerol and 10% NaOH and in hot $\text{C}_2\text{H}_5\text{N}$ and Me_2CO . They show greater stability than the common diazo compounds to the action of elevated temps. (60-90°), prolonged storage (over 1 year) and shock by blow. They burn in a free flame without a flash. These prepus. (freshly prepd. or dried) react in an aq. suspension with azo components to give dyes of the same color and tinctorial strength as the corresponding simple diazonium salts. Cu and its salts catalyze the decompn. of the complex diazo compounds with

the cleavage of the heteropoly acid and the formation of corresponding phenols. Thus, the derivs. of α -ONCH₂-NH₂ and α -anisidine gave, resp., 40% α -O-NC₆H₄OH and 70% guaiacol. III. Complex diazo compounds of phenylenediamines with heteropoly acids and certain dyes derived from them. V. V. Kozlov, B. N. Arkhipov and A. V. Simanovskaya. *Ibid.*, 197-704. The isomeric $\text{CaH}_2(\text{NH}_2)_2$ react in HCl soln. with heteropoly acids to give sparingly sol. complex salts of the type: $[\text{CaH}_2(\text{NH}_2)_2(\text{H}_2\text{P}(\text{MoO}_4)_3)]$, $[\text{CaH}_2(\text{NH}_2)_2(\text{H}_2\text{P}(\text{W}_2\text{O}_7)_2)]$ and $[\text{CaH}_2(\text{NH}_2)_2(\text{H}_2\text{Si}(\text{W}_6\text{O}_{21})_2)]$. The complex salts, derived from m - and p -isomers, react with NaNO_2 in HCl soln. to give 98-100% of monodiazotized compds. of the type: $\text{H}_2\text{P}(\text{MoO}_4)_3$, $[\text{H}_2\text{NC}_6\text{H}_4\text{N}_2](\text{H}_2\text{P}(\text{MoO}_4)_3)$, and $[\text{H}_2\text{NC}_6\text{H}_4\text{N}_2](\text{H}_2\text{Si}(\text{W}_6\text{O}_{21})_2)$. If NaNO_2 is used in excess of 1 mol., the yellow or pale-rose monodiazotized products become discolored by partial decompn. Analytical and expl. evidence showed that only 1 NH₂ group in $\text{CaH}_2(\text{NH}_2)_2$ is diazotized. Thus, the decompn. of the diazo products with boiling dil. H_2SO_4 and the treatment of the decompn. residue with 20% NaOH gave no resorcinol and hydroquinone, resp., but the corresponding m - and p -H₂NC₆H₄OH, identified as di-Hz derivs. In soly. and stability these monodiazotized compds. are similar to the complex diazo compds. described in part II above. When coupled with 2-C₆H₄OH, they give up to 98% of brown azo dyes of good fastness. When treated with 5-10% NaOH, these dyes are decompd.: $\text{H}_2\text{P}(\text{MoO}_4)_3$, $[\text{H}_2\text{NC}_6\text{H}_4\text{N}_2](\text{H}_2\text{P}(\text{MoO}_4)_3)$ + $n\text{NaOH} = 3 \text{H}_2\text{NC}_6\text{H}_4\text{N}_2\text{C}_6\text{H}_4\text{OH} + n\text{H}_2\text{O} + \text{Na}_2\text{P}_2\text{O}_7 + \text{Na}_2\text{MoO}_4$ (cf. C. A. 31, 6009P). α -CaH₂(NH₂)₂ reacts also with heteropoly acids, but the resulting crys. complex salts form with HNO₃ some complex compds. incapable of coupling reaction with azo components, and probably are azimides of the type $[\text{CaH}_2(\text{NH}_2)_2(\text{H}_2\text{P}(\text{MoO}_4)_3)]$, 1,3-C₆H₃(NH₂)₂ gives analogous reactions. C. B.

COMMON ELEMENTS		PROCESS AND PROPERTIES INDEX		IND AND ATN CIPHERS													
ca		<p>Naphthalene series. IX. Transformation of a salt of 1-naphthylamine-4-sulfonic acid into a salt of 1-naphthylamine-2-sulfonic acid. N. N. Vorozhtsov, V. V. Kozlov, B. V. Aristov, A. I. Baryshev and M. F. Fedukov. <i>J. Gen. Chem.</i> (U. S. S. R.) 10, 804-806 (1940); cf. C. A. 33, 7773'. The transformation of the Na salt (I) of 1,4-$\text{H}_2\text{NC}_6\text{H}_4\text{SO}_3\text{H}$ (II) into the Na salt (III) of 1,2-$\text{H}_2\text{N}-\text{C}_6\text{H}_3\text{SO}_3\text{H}$ (IV) on heating with sand or CaH_2 in the presence of air proceeds via the Na salt (V) of 1-naphthylsulfamic acid (VI), since small amts. of 1-naphthylamine from VI can be detected in the reaction mixt. and V yields III on heating and not I, as erroneously stated by Berkenheim and Filimonov (C. A. 33, 1305') for the corresponding NH_2 salt. The K, Mg and Ba salts of II react in an analogous manner as I, and the K and NH₄ salts of VI react like V. II is not rearranged on heating. The yield of III is particularly high (73.77%) when I is boiled with quinoline.</p> <p style="text-align: right;">Gertrude Berend</p>		10													
<p>Lab Dyestuffs, Moscow Chem. Tech. Inst. in. Mendeleev</p>																	
<p>ASM-11A METALLURGICAL LITERATURE CLASSIFICATION</p>																	
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PROCESSES AND PROPERTIES INDEX																																																			
<p><i>C-4</i></p> <p>The thianthrene series. I. Thianthrene-3 sulfonic acid disulfone. V. V. Kozlov, E. P. Pruktova and O. M. Shemyakina. <i>J. Gen. Chem.</i> (U. S. S. R.) 10, 1077-88 (1940). $-S_2Cl_2$, CaH_2 and $AlCl_3$ give 78.5% thianthrene which is oxidized by CrO_3 in glacial HOAc to give 92% thianthrene disulfone (I), m. 321°. This is very inert toward sulfonating agents, and only when heated for 2 hrs. at 140° with a large excess of 62% oleum in a sealed tube does it give 58% of a monosulfonic acid, isolated as the K salt (II). No other compds. can be obtained. The NH_4, Mg, Na, K, Cu, Ba, Zn, Al, Fe, Pb and Ag salts are described. When II is refluxed for 5 hrs. with PCl_5 at 100° in the presence of a little $POCl_3$, it gives 72% of the sulfonyl chloride (III), decamps. 194°. When III is heated with H_2O in a sealed tube, it gives a very hygroscopic acid. III and NH_3 give the corresponding acid amide, m. 178°. When II is ground with PCl_5 and same $POCl_3$ and heated for 5 hrs. at 180°, it gives 78% of a chlorothianthrene disulfone, m. 120°, which is identical with the compd. prepd. by oxidizing β-chlorothianthrene with CrO_3 in HOAc. Fusion of II with NaOH gives PhOH, resorcinol and p-HOC_6H_4SO$_2$H. These facts prove that sulfonation of I occurs in the β-position. H. M. L.</p>																																																			
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<p>Diazo compounds. IV. The influence of polyhydric alcohols and some saccharides on the diazotization of <i>m</i>-phenylenediamine. V. V. Kozlov and B. I. Stepanov. <i>J. Gen. Chem.</i> (U. S. S. R.) 10, 1510-23 (1940); cf. preceding abstr.—The influence of addn. of glycerol, mannitol, (C₁₂H₂₂O₁₁), saccharose, glucose, maltose, lactose and raffinose on the diazotization of <i>m</i>-C₆H₄(NH₂)₂ (I) was investigated. The yield of bisdiazo compd. formed was found to increase with the increasing no. of HO groups in the mol. of the added substance. It also increased with the concn. of the added substance in soln. It was also found that the addition of glycerol increased the speed of the azo-coupling reaction. Six curves, 18 tables and 17 references are given. James J. Lichtin</p>																			
<p>ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																			

KOZLOV, V. V.; ARKHIPOV, B. N.; SIMANOVSKAYA, A. V.

"Investigations in the Field of Diazo Compound--III. On the Complex Diazo Compounds of Phenylene Diamenes With Heteropoly Acids and some Pigments From Them". Zhur. Obshch.Khim. 10 No. 8, 1940. Lab. of Dyestuffs, Moscow Chemico-Technol. Inst. imeni Mendeleyev. Received 13 Oct. 1939.

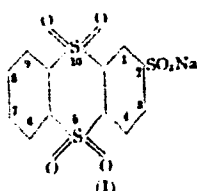
Report U-1627, 11 Jan. 52

Chem. Ab., Vol. 38, March 10, 1944.

CIA-RDP86-00513R0008259100

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Thianthrene series. II. 1,2-Dihydroxythianthrene disulfone. V. V. Kozlov and N. I. Shakhovskaya (Moscow Chem. Tech. Inst.); *J. Gen. Chem. (U.S.S.R.)* 16, 1115-20 (1946) (in Russian); cf. *C.I.* 35, 4028. —Na 2-thianthrenesulfonate 5,10-disulfone (I) (1.27 g.), 8 g. NaOH, 0.65 g. NaNO₂, and 20



cc. water were heated in an autoclave 5 hrs. to 180°, the mixt. acidified with Congo red with HCl, evapd. to the mixt. acidified with EtOH to give 0.5 g. 1,2-dihydroxythianthrene 5,10-disulfone, a deep-yellow mass, m. 197°; di-Na salt, yellow needles (from dil. EtOH); Pb salt, yellow grains (from EtOH); the K, Ca, Zn, Co, Ni, and Cu salts are readily sol. in water and EtOH, the Ag salt poorly sol. in water. The above expt. was repeated, using 2 g. Na salt and 2 g. CaO in 20 cc. water 3.5 hrs. at 180-190°, followed by acidification with HCl to Congo red; the soln. was then condensed with diazo-*p*-nitroaniline in Na₂CO₃ soln. to yield a red-orange dye. The product of

the CaO reaction may be partially extd. with Et₂O, CHCl₃, or xylene from the original reaction mixt., but, due to its great soly. in water, the mother liquors still give the above-mentioned dye. It was possible to isolate only 25-30% 2-hydroxythianthrene 5,10-disulfone (II), m. 160° (decompn.) (from EtOH), in a state of comparative purity; it gives a brown color with FeCl₃, a black ppt. with NH₄AgNO₃, a white ppt. with CaCl₂, and a yellow ppt. with Br water. II was acetylated only with difficulty on heating to 120° with Ac₂O in the presence of a little H₂SO₄; Ac deriv. m. above 300° (from EtOH); treatment with Br in AcOH gave a dibromide, C₁₀H₆O₂S₂Br₂, m. 159.5° (from AcOH or EtOH). The mono-OH compd. may also be obtained in 17% yield by conducting the autoclave reaction with 1.27 g. Na sulfonate, 2 g. NaOH, and 20 cc. water 5 hrs. at 180-90°, with isolation of the product by EtOH extn. of the evapd., acidified reaction mixt.

G. M. Kosolapoff

ASB-5.5A METALLURGICAL LITERATURE CLASSIFICATION

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PROCESSES AND PROPERTIES INDEX

The naphthalene series. XI. Rearrangement of the salts of 1-naphthol-4-sulfonic acid into the salts of 1-naphthol-2-sulfonic acid. V. V. Kozlov and M. A. Shiloberg (Moscow Chem. Tech. Inst. Mendeleeva). *J. Gen. Chem.* (U.S.S.R.) 16, 1291-1302 (1946) (in Russian); cf. *C.A.* 30, 2744. - The rearrangement of salts of 1-naphthol-4-sulfonic acid into the salts of 1-naphthol-2-sulfonic acid was studied in respect to the effect of temp. and time; the results were completely analogous to those reported earlier (Vorozhtsov, *et al.*, *C.A.* 35, 4373) in connection with the formation of salts of 1-naphthylamine-2-sulfonic acid. The rearrangement apparently proceeds through the intermediate formation of a 1-naphthol sulfate ester; the reaction is completely inhibited by CaCl_2 . The temp. range studied was 130-200°, with max. duration of 6 hrs. In a typical expt., 3.25 g. Na 1-naphthol-4-sulfonate and 20 g. sand were heated to 180° 3 hrs. to give 32.5% 1-naphthol-4- and 63.4% Na 1-naphthol-2-sulfonate. The sepn. of the products was effected through the K salts; salting out with KCl pptd. only the K 1-naphthol-2-sulfonate, the 4-isomer remaining in soln. G. M. K.

ASB-564 DETALLURGICAL LITERATURE CLASSIFICATION

REGIONAL INDEX

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KOZLOV, V. V.

PA 15T46

USSR/Chemistry - Anthraquinone
Chemistry - Sulfonic acid

Feb 1947

"Investigation of the Anthraquinone Series: 1, The
Study of 1,4-Anthraquinone Disulfonic Acid," V. V.
Kozlov, 10 pp

"Zhur Obshch Khim" Vol XVII, No 2

Synthesis of the subject acid, and studies of its
salts with metals and amines.

15T46

KOZLOV, V. V.

PA 15T47

USSR/Chemistry - Anthraquinone
Chemistry - Sulfonic acid

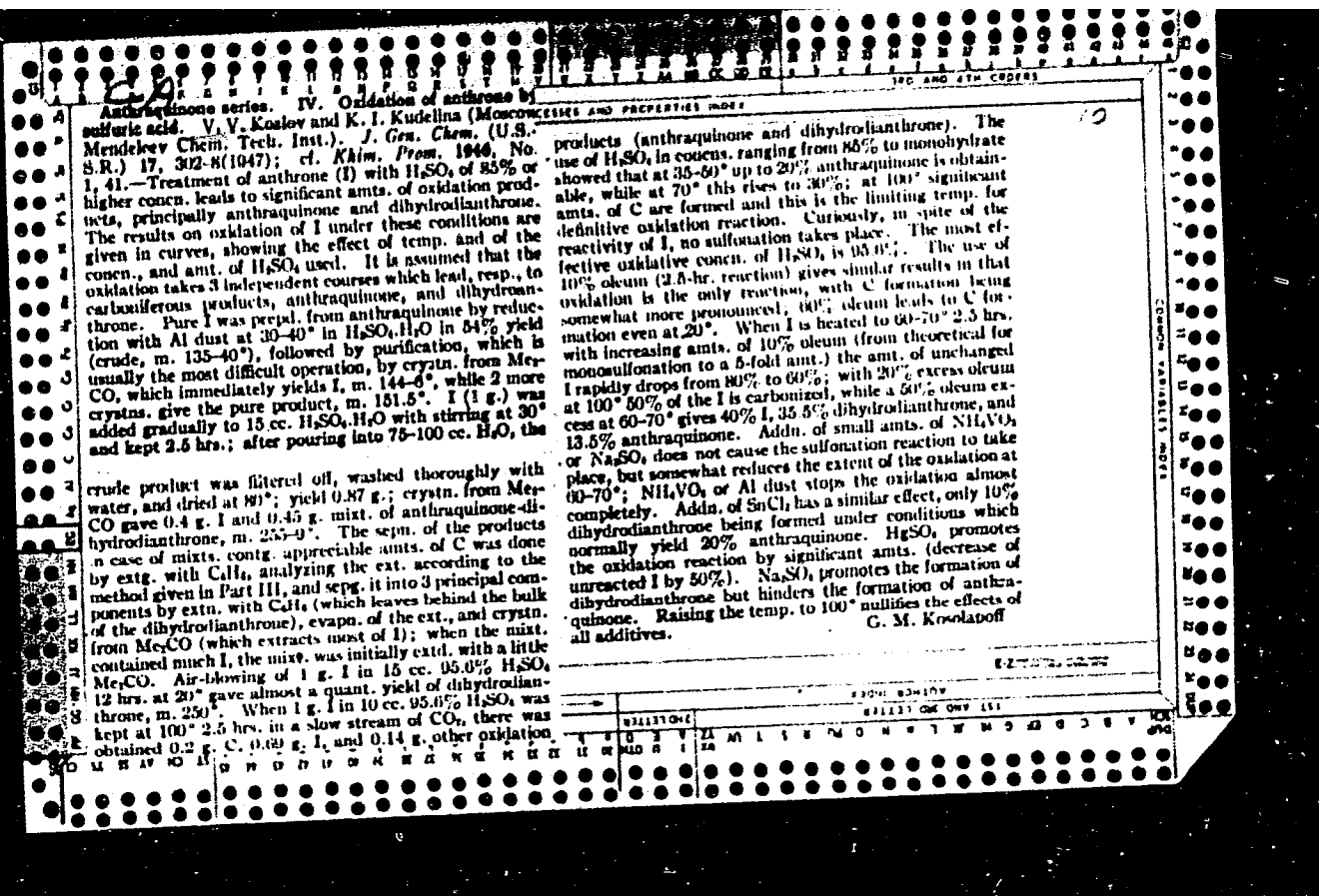
Feb 1947

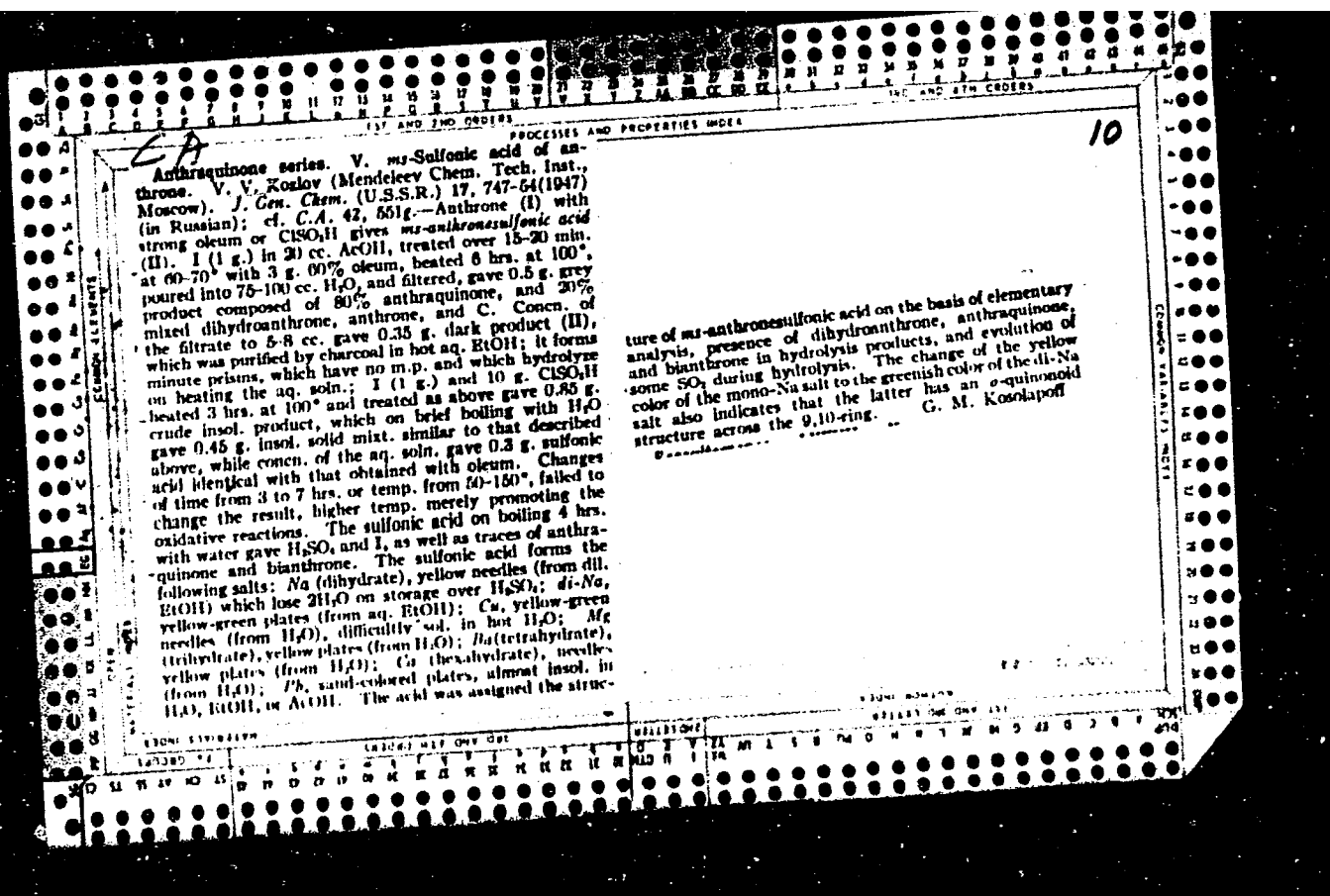
"Investigation of the Anthraquinone Series: 2,1-
Chloro-4-Anthraquinone Sulfonic Acid," V. V. Kozlov,
5 pp

"Zhur Obshch Khim" Vol XVII, No 2

Subject acid obtained by action of chlorine on 1,4-
anthraquinone disulfonic acid (see above) during
its evolution.

15T47





with 18 moles ClSO_3H and 1 mole 60% oleum or alkali sulfate. Sulfonation in the presence of Hg does not lead to 1-sulfo derivs.; almost all the Hg sublimes in the form of HgCl_2 . Sepn. of I and III is best done by ligroin, but any fractional crysln. of these substances is not very satisfactory; hence, in view of the rather low content of secondary products, the analysis of the mixts. was best done by sublimation of residual I (temp. is not given); III is estd. by difference. I (20.8 g.) was added over 0.5 hr. at room temp. to 11.7 g. ClSO_3H , after which the mixt. was heated 3 hrs. at $130-5^\circ$; after cooling and pouring on ice, the mixt. was rapidly boiled, filtered at 60° , and the filtrate and aq. washings were heated to the b.p. and treated with 50 ml. 20% Na_2SO_4 ; the salted out Na salt of II (21%) is filtered off in 15 hrs. and recrystd. from H_2O ;

conversion of this to the Cl deriv. gives IV, m. 204-6°, thus showing that the primary product is II. The ppt. obtained from the original reaction mixt. and II (usually m. 203-4° and on sublimation gives I (63.8%); crystal. from solvents (unspecified) permits isolation of 5% III, m. 190-91° (from ligroin); no other products were isolated. The use of excess ClSO_3H gave addnl. products, summarized as follows: (1) 6 moles ClSO_3H : 58% I, 1.5% Na salt of II, 20.2% III, 1.5% IV, 2.5% V, 1.5% hydroxy deriv. of I, 2.0% hydroxy derivs. of sulfonanthraquinones (VI), 3.5% anthracene deriv., and 0.15% adducts of Cl to I; (2) 12 moles ClSO_3H : 4.0, 2.5, 39.5, 2.5, 3.5, 2.8, 0.0, 5.5, and 0.2%, resp.; (3) 18 moles ClSO_3H : 11.5, 9.0, 54.5, 4.0, 7.5, 6.0, 1.5, 2.0, and 0.15%, resp.; (4) 30 moles ClSO_3H : —, —, 80.0%, trace, 7.0, 9.0, 2.5, 2.5, —. The V referred to represents the mixt. obtained on treatment of the mother liquor, after sepn. of II, with hypochlorite; it is apparently a mixt. of the 2,6- and 2,7-isomers. IV was estd. by Cl analysis of the thoroughly washed ppt. after ice treatment and by fractional crystal. of the sublimate from AcOH, as well as by adsorption of Al_2O_3 from PhMe soln. The VI were detected by the color change of the mother liquor on neutralization by Na_2CO_3 ; the mother liquor with hypochlorites at 80° gave a crude hydroxy chloro deriv., m. 250-80°, while crystal. from AcOH gave $\text{C}_{14}\text{H}_8\text{O}_4(\text{OH})_2$, m. 204°; although the structure of these compds. was not established, the color change to red on neutralization indicates a 2-OH deriv. Crude III on heating in an autoclave with lime gave 85% 2-hydroxyanthraquinone. G. M. Kopolodov

G. M. Kozlov

CA

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The sulfonation of 2,2'-dinaphthyl sulfone. V. V. Kozlov and G. S. Tulyanskaya (Mendeleev Inst., Moscow). *Dokl. Akad. Nauk S.S.S.R.* 58, 231 (1947); *Chem. Zentr.* 1948, II, 245 B. The products of the action of H_2SO_4 on $(2-C_{10}H_7)_2SO_2$ are extremely difficult to sulfonate under normal conditions. The acid must be concd. and used in large excess. The min. concn. required to produce slow sulfonation at 100° when used in an excess equal to 30 times the theoretical amt. was 87.5%. A like excess of 96% acid sulfonated the sulfone at $15-20^\circ$ within an hour. A 30% excess of the monohydrate (caked, on monosulfonation) did not produce sulfonation in 5 hrs. even at 165° . No better results were obtained by treating the sulfone in HOAc with 20-60% oleum 6 hrs. at 55° . The addn. of 10% Na_2SO_3 (scaled, on the sulfone) accelerated the reaction somewhat. Because of the equivalence of the 2 naphthalene nuclei, the formation of the monosulfonic acid in addn. to the disubstituted product is very slight. Reaction products reported are: $(5,2-HO)_2SC_{10}H_7SO_2$ (I); $(7,2-HO)_2SC_{10}H_7$ (II), and $2,5-(2-C_{10}H_7SO_2)_2C_{10}H_7SO_2$ (III). Lower temps.

favored the formation of I and III; at about 100° the formation of III was already slight, while at 165° the principal product was II. The di compds. were not brominated by bromide-bromate, while the mono compd. took up 2 Br atoms. All 3 sulfonic acids showed weak surface activity (emulsifying power). Alkali fusions of the disulfonic acids yielded di-HO deriva. which could be used as new *azo dye* components. Exptl.: 3-6 g. $(2-C_{10}H_7)_2SO_2$, m. 174° , was heated with 30 times the theoretical amt. of concd. H_2SO_4 , the product poured into 100-200 cc. water, filtered off, the unchanged sulfone washed out, the mother liquor and wash water neutralized with $NaCO_3$, and the filtrate from the ppt. of concd. The Ba salt of III sepd. out first, then the Ba salt of I. The filtrate was evapd. to dryness and exhd. with 80% alc. The residue was almost pure I; II was obtained from the alc. ext. Derivs. of I: the Ba salt with H_2SO_4 yielded free I, as a hygroscopic mass, m. 64° . The Ba salt with PCl_5 3 hrs. at 100° yielded the dichloride, $C_{10}H_7O_2Cl_2$, needles (from CCl_4 , xylene, and HOAc), m. 222° , 30% by hydrolyzed in 6 hrs. by heating with water at 100° , completely hydrolyzed by aq. HOAc and aq. alc., formed esters with anhyd. alcs. Disulfonamide, platelets from $PhNH_2$, MeOH, m. 200° ; disulfonamide, platelets from $PhNH_2$.

over

² $C_{11}H_7$, m. 278°. The Ba salt, $C_{11}H_7O_2S_2Ba \cdot 4H_2O$ crystal. from water as octahedrons, $C_{11}H_7O_2S_2Ba \cdot 7H_2O$ from aq. alc. as rhombic crystals, $C_{11}H_7O_2S_2Pb$, platelets from aq. alc. platelets; Pb salt, $C_{11}H_7O_2S_2Pb$, platelets from aq. alc. insol. in water and HCl; Cu salt, greenish needles, HCl, insol. in water; Fe, Ni, and NH salts, plate. Cu salt, thin needles; Fe, Ni, and NH salts, plate. Cu salt, granular, insol. in water; aniline salt, $C_{11}H_7O_2S_2NH_2$, m. 175°, readily sol. in water; and Hg salt, needles from water, m. 175°, $SO_2(SO_2NH_2)Pb \cdot 4H_2O$, needles from water, m. 175°, $SO_2(SO_2NH_2)Pb \cdot 4H_2O$, needles from water, m. 175°, Derivs. of II: Dichloride, microcrystals from glacial HOAc, m. 136°, very sol. in org. solvents, and 85% hydrolyzed by heating with water 6 hrs. at 100°, and otherwise analogous to the dichloride of I; disulfonamide, fine crystals from MeOH, m. 198°, insol. in ether, $C_{11}H_7$, xylene, and Cl-contg. solvents; disulfonamide, needles from MeOH- $C_{11}H_7$; $C_{11}H_7O_2S_2(SO_2Na) \cdot 4H_2O$, hygroscopic needles from alc.; $C_{11}H_7O_2S_2(SO_2Na) \cdot 4H_2O$, needles from alc.; benzidine salt, obtained as an oily residue. The salts of other metals and of many amines were very sol. in water. PCl_5 with the Ba salt of III gave the sulfonyl chloride, needles from $C_{11}H_7$, m. 190-7° and from this the 2-chloronaphthalene, m. 61°, and 1,6-dichloronaphthalene, m. 19°.

M. G. Moore

1ST AND 2ND ORDER		PROCESS AND PROPERTIES INDEX	
<p>Anthraquinone series. VII. Suppression of the catalytic effect of mercury in the sulfonation of anthraquinone. V. V. Kozlov. <i>Zhur. Obshchei Khim.</i> (J. Gen. Chem.) 18, 242-50 (1948) (in Russian); cf. C.A. 42, 7284d, and following abstr.—In view of the elucidation of the nature of the well-known anticatalytic effect of NaCl, counteracting the α-sulfonating effect of Hg and thus permitting sulfonation of anthraquinone (I) to β-sulfonic acids even in the presence of Hg, the behavior of different Hg compds. in sulfonation, and their soly. in oleum, were investigated. In the monosulfonation of I in the presence of considerable amts. of Hg, HgO, or HgSO₄, the max. amt. of Hg (calcd. as HgO) bound by the unreacted I is up to 10% of its wt., 17% in the case of HgSO₄. With Hg, HgO, or HgSO₄, traces of Hg begin to appear in the sulfonated product when the amt. of the Hg (as HgO) is about 4% (relative to the wt. of I). HgCl₂, 1-2%, also directs the sulfonation to the α-deriv.; however, with up to 5% HgCl₂, the unreacted I binds only up to 0.76% of its wt. of HgO; a considerable amt. of the HgCl₂ sublimes and condenses on the walls. At 135°, the soly. of HgCl₂ in 3.5% oleum is very slight and no Cl⁻ ions are detectable; in 23.5% oleum, one detects equiv. amts. of Hg⁺⁺ and of Cl⁻, but, on cooling, HgSO₄ crystallizes instead of HgCl₂. Consequently, in oleum, HgCl₂ is decompd. into HgSO₄ + 2HCl; in strong oleum, no HCl is evolved on soln. of HgCl₂, hence the reaction is $\text{HgCl}_2 + \text{HgSO}_4 + \text{SO}_3 \rightarrow \text{HgSO}_4 + 2\text{SO}_3\text{HCl}$. The extent of the reverse reaction is insufficient to ensure adequate removal of Hg by sublimation of HgCl₂. Thus, addn. of HgCl₂, inasmuch as it is converted into HgSO₄, has the same α-sulfonating catalytic effect as other Hg compds. This effect is effectively counteracted not only by NaCl but also by other anticatalysts. Thus, in the sulfonation of 200 g. I in 160 g. 40% oleum, with 2 g. HgO, 3.5 hrs. at 135°, the amts. of β- and α-sulfonic acids were: with 0.5% NaCl, 45 and 55%; with 1% NaCl, 100 and 0%; with 1% MgCl₂, 100 and 0%; with 1% CaCl₂, 91 and 9%; with 2% PCl₃, 90 and 10%; with 2% PCl₅, 91 and 9%; with 1, 2, and 5% NaBr, 0 and 100, 15.5 and 84.5, 85.6 and 14.3%; KCN has a weak anticatalytic effect, thus, with 3 and 6% KCN, 46 and 54, 52.2 and 47.8%. Na₂SO₄, NaI, and NaF have no anticatalytic effect at all. The following facts are quoted as evidence that the anticatalytic effect consists in supplying HCl for the reaction $\text{SO}_3 + \text{HCl} \rightarrow \text{SO}_3\text{HCl}$, which converts the bulk of the Hg or Hg compd. into nonionized HgCl₂, thus ensuring the removal of Hg from the reaction mixt. through sublimation. Preliminary boiling of I, prior to sulfonation, with HCl en-</p>		<p>10</p>	
<p>ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>			
<p>SHOW SYMBOLS</p>			
<p>SYMBOLS</p>			

sures sulfonation to β ; while with equiv. amts. of HgSO_4 and NaCl in concd. H_2SO_4 , preliminarily heated to 100-110°, the product is α ; with a mixt. of HgCl_2 or HgSO_4 with 2 equivs. of NaCl in 25% oleum, heated as before, β -sulfonic acid is obtained; HgCl_2 alone in 25% oleum, preliminarily heated, gives α , but with an addn. of 1% SO_3HCl it gives only β . Sublimation of HgCl_2 begins only after a time lag of about 30 min., ascribed to formation of the complex $\text{SO}_3\text{HCl.HgCl}_2$. The mechanism of the anticatalytic effect of NaCl can thus be summarized in the scheme: $3 \text{ NaCl} + 3 \text{ H}_2\text{SO}_4 \rightarrow 3 \text{ NaHSO}_4 + 3 \text{ HCl}$; $3 \text{ HCl} + 3 \text{ SO}_3 \rightarrow 3 \text{ SO}_3\text{HCl}$; $\text{HgSO}_4 + 2 \text{ SO}_3\text{HCl} \rightarrow \text{HgCl}_2 + \text{H}_2\text{SO}_4 + 2 \text{ SO}_3$; $\text{HgCl}_2 + \text{SO}_3\text{HCl} \rightarrow \text{HgCl}_2\text{SO}_3\text{HCl}$; $\text{HgCl}_2\text{SO}_3\text{HCl} \rightarrow \text{SO}_3\text{HCl} + \text{HgCl}_2$ (sublimes); the global reaction is $3 \text{ NaCl} + 2 \text{ H}_2\text{SO}_4 + \text{SO}_3 + \text{HgSO}_4 \rightarrow 3 \text{ NaHSO}_4 + \text{HgCl}_2 + \text{SO}_3\text{HCl}$. The effect of KCN is explained in a similar way, by formation of the equally nonionized but less stable Hg(CN)_2 .

N. Thon

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CA

Hydrolysis of anthraquinonemonosulfonic acids. V. A. Kozlov and A. A. Igorova (Chem.-tech. Mendeleev Inst., Moscow), *Doklady Akad. Nauk S.S.S.R.* 37, 407-70(1947); *Chem. Zentr.* (Russian Zone Ed.) 1948, II, 407-1; cf. C.I. 43,340g. - Contrary to data in the literature, 1-anthraquinonesulfonic acid (I) can be hydrolyzed to anthraquinone (II) by H_2SO_4 , even in the absence of Hg salts. The acid or its Na salt heated with 85% H_2SO_4 under pressure at 100-200° for 6 hrs. yielded 64-80% II. Hydrolysis of the 2-acid under pressure is likewise possible in principle. However, heating this acid with water at 300° for 6 hrs. gave only 8% II. When the acid was heated to high temp. with concd. H_2SO_4 , side reactions occurred. Hg salts made the hydrolysis of the 1-acid proceed smoothly but were of no value with the 2-acid. I could be hydrolyzed with 85% H_2SO_4 at 100-200° even in an open vessel or with dil. acid (5%) under pressure at 200°; yield of II, 60%. The reaction is very much accelerated by the presence of Hg, with a Hg org. compd. being formed. I heated with water at 180-200° formed hydroxyanthraquinone (III), m. 100°; the reaction liquid contained H_2SO_4 . When dil. H_2SO_4 (0.25%) or even 0.01% was used, the yield of III decreased in favor of the compd. with no (OH) group. Even when the salt of the acid (Na, K, NH₄, or Ca) were used, the yield of III was poor. It could be increased by using 0.2% H_2SO_4 with the Na salt of I and heating at 250-300° for 12-18 hrs. Heating I with water in the presence of a Hg salt reduced the yield of III; when H_2SO_4 (5-85%) was used only II was obtained. When 1,2-anthraquinonesulfonic acid was heated with H_2SO_4 in the presence of Hg salts only the 1-sulfonic acid group was attacked so that the 2-acid was formed.

M. G. Moore

PA 8/49T51

KOZLOV, V. V.

USSR/Chemistry - Anthraquinone
Chemistry - Anthrone, Mercurization of

Apr 48

"Studies in the Field of the Anthraquinone Series,"
V. V. Kozlov, Lab of Dyes, Moscow Chemicotech Inst
imeni D. I. Mendeleev, 10 pp

"Zhur Obshch Khim" Vol XVIII (LXXX), No 4

Describes mercurization of anthrone using mercury
acetate and sulfate. Products are dihydrodian-
throne, anthraquinone, bianthrone, and mercury
organic compounds. Submitted 13 Feb 1947.

8/49T51

[illegible]

difficulty of isolation of III because of C formation. III with CrO_3 in H_2SO_4 at 50° 1 hr. gave anthraquinone (85%); passage of dry air into soln. of III in $\text{H}_2\text{SO}_4 \cdot \text{H}_2\text{O}$ at $50-60^\circ$ 6 hrs. gave the same product and II; III mixed with a little glycerol and AcOH and treated hot with concd. HCl and KClO_3 gave anthraquinone and *ms*-dichloroanthrone; III reduced with KI in dil. HCl in the presence of a little alizarin oil gave anthrone, II, and a brown Hg deriv. insol. in org. solvents, which on treatment with H_2SO_4 loses S, but retains Hg, analysis giving $\text{C}_{14}\text{H}_8\text{O}_2\text{Hg}$ (mol. wt. in H_2SO_4 , 596); it is apparently identical with I. Heating 0.5 g. II and 0.5 g. H_2SO_4 in 20 ml. H_2SO_4 2 hrs. at $50-60^\circ$ with stirring gave 0.2 g. anthraquinone and 0.3 g. IIa; no Hg deriv. was isolated. IX Action of sulfonating agents on mercury-containing compounds of anthrone. *Ibid.* 801-5.—The action of sulfonating agents on *meso*-Hg derivs. of anthrone gives a complex mixt. as a result of direct exchange of the Hg residue for the SO_3H group, oxidative reactions, and side reactions. 10-Anthranylmercury sulfate (IV) (0.3 g.) and 2 ml. H_2SO_4 heated 1 hr. at 100° and then poured into 8 ml. water gave a ppt. contg. 0.26 g. original Hg deriv.; no sulfonic acid is detected in the filtrate; traces of anthraquinone and 0.03 g. II, m. 254° , are found in the

ppt. The Hg deriv. (1.2 g.) and 5 g. 20% oleum after 3 hrs. at 70° gave 0.2 g. II and 0.02 g. anthraquinone, while the soln. after neutralization, filtration, and acidification gave 0.33 g. anthrone-*meso*-sulfonic acid (V) (cf. K., C.A. 42, 1254f); similar heating for 3 hrs. at 135° gave 0.04 g. V, traces of an anthraquinone-sulfonic acid, and 0.6 g. II, as well as traces of IIa and C. Heating 0.5 g. V with 5 g. 20% oleum 3 hrs. at 135° failed to yield anything from an alk. ext. besides 0.03 g. chloroanthraquinone, m. 202° (obtained by treatment of the filtrate with HOCl); the insol. portion gave 0.08 g. anthraquinone and 0.3 g. II. IV (1.5 g.) and 5 g. ClSO_3H heated 3 hrs. to 135° gave some HgCl_2 and 0.56 g. V, as well as 0.009 g. II and 0.006 g. anthraquinone. The Hg deriv. of II (2 g.) and 5 g. 20% oleum after 1 hr. at 70° , filtered hot after pouring into water, gave on neutralization of the aq. soln., filtration, and acidification, 0.3 g. V, while HOCl added to the filtrate gave a trace of 1-chloroanthraquinone, m. 181.5° ; the main ppt. (1.3 g.) on extr. with CHCl_3 left 0.3 g. insol. residue contg. S and Hg and corresponding in compn. to IV; the CHCl_3 ext. gave 0.7 g. II and 0.12 g. anthraquinone.

G. M. Kosolapoff

PA 8/8/49T61

USSR/Chemistry - Anthrone
Chemistry - Dyes, Anthraquinone

May 48

"Studies of the Anthraquinone Series, IX," V. V. Kozlov, Lab of Dyes, Moscow Chemicotech Inst imeni D. I. Mendeleev, 4 3/4 pp

"Zhur Obshch Khim" Vol XVIII (LXXX), No 5

Devoted to action of sulfurizing agents on mercury compounds of anthrone. With the meso-mercury compounds, a complex mixture is formed as the result of direct replacement of the mercury by a sulfo group, by oxidizing condensation and similar process. The action of oleum (700) on meso-mercury-sulfate or on dihydroquinone-mercury results in the formation of

8/49T61

USSR/Chemistry - Anthrone (Contd)

May 48

anthrone meso-thiocarbonate and dihydroanthrone as basic products. At 1350, the main product is dihydrodianthrone. When chlorosulfuric acid (1350) reacts with anthrone-meso-mercury-sulfate, the main product is anthrone meso-thiocarbonate. Submitted 18 Mar 1947.

Moscow Chemicotech. Inst. im. D. I. Mendeleev.

8/49T61

KOZLOV, V. V.